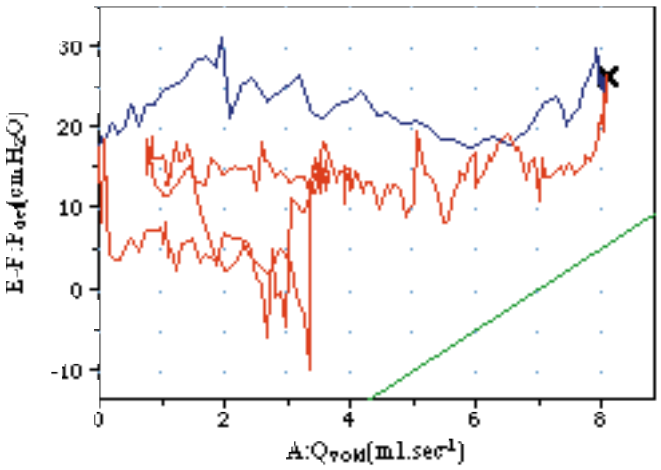
# UroReport Guide

Document No. NS01306D
Revised: 17.07.99




Please contact **Neomedix Systems** if you have any problems or suggestions regarding this document or require more detailed information regarding UroReport.

**Tel:** +612 9913 8044
**Fax:** +612 9913 7818
**eMail:** sales@neomedix.com
**netSite:** http://neomedix.com

Document No.: NS01306D.OPI
Date: 15 July, 1999

**Neomedix Systems Pty. Ltd.**
Location : Unit 13, No 1 Vuko Place
Warriewood
N.S.W, 2102
Australia
Postal Address : P.O. Box 890
Mona Vale
N.S.W. 1660
Australia
Telephone : National : (02) 9913 8044
International : +612 9913 8044
Facsimile : National : (02) 9913 7818
International : +612 9913 7818
email : insight@neomedix.com
www.neomedix.com

## ABOUT_THIS_MANUAL

This manual is specific to UroReport version 3.1.9. Consequently it may appear substantially different if you are using a different version of the software.

To check which version of UroReport you have, first launch Uromac, then select "About Uromac…" from the Apple Menu, and click on the jigsaw puzzle shaped extension button. You should see UroReport in the list of installed extensions. If it is not there, you probably need to install the software (see Appendix A.), if it is, click on the UroReport entry. The version of the software will now be displayed.

If the UroReport version is earlier than version 3.1.9 you should enquires about a software upgrade. If it is later than version 3.1.9 then use this manual with caution. A later revision of this manual may be available or at least some page inserts describing the updates.

This manual assumes that you are familiar with the operation of the Apple Macintosh computer. If you are unsure about the use of menus and dialogues then you should run the Macintosh tuition program that was supplied with your system. A fundamental understanding of the Macintosh environment is required to use UroReport as supplied. A more detailed knowledge is required to customise reports and to export formatted data.

Note that some of the dialogue boxes shown in this manual will appear differently depending on the version of MacOS you are running.

## TABLE OF CONTENTS


| | | Page No |
|---|---|---|
| **1. Introduction** | | 4 |
| **2. Configuring the Report** | | 5 |
| 2.1 | Customising Comments | 5 |
| 2.2 | Patient demographics | 7 |
| 2.3 | Report details | 8 |
| 2.4 | Fill phase | 9 |
| 2.5 | Void Phase | 10 |
| 2.6 | Urethral pressure profiles | 11 |
| 2.7 | Video Micturating Cystogram | 12 |
| 2.8 | Summary comments | 13 |
| **3. Report creation and Data Transfer** | | 14 |
| 3.1 | Analysing your data | 14 |
| 3.2 | More on automatic analysis | 16 |
| 3.3 | More on manual analysis | 16 |
| 3.4 | Checking the data points transferred | 16 |
| **4. Saving a Report** | | 19 |
| **5. Saving the Setup** | | 20 |
| **6. Printing/Previewing a Report** | | 21 |
| **7. Opening an Existing Report/File** | | 22 |
| **8. Editing a Report** | | 22 |
| **9. Archiving your data** | | 22 |
| **10. Import/Export** | | 23 |
| **Appendices:** | | |
| **A -** | Installing UroReport | 24 |
| **B -** | Internal Calculations | 25 |
| **C -** | Report Messages | 32 |
| **D -** | Troubleshooting | 34 |
| **E -** | Internal Data Format | 35 |
| **F -** | Export Data Format | 41 |
| **G -** | Data Point Diagrams | 44 |

# 1 . INTRODUCTION

UroReport is designed to simplify Urodynamic report generation and presentation. It is used with Uromac application software to extract measurements from acquired waveforms, automatically carry out any derived calculations and to provide a suitable report form for all the necessary patient information. The prepared reports can be subsequently edited, printed and saved.

UroReport has been designed to conform with the International Continence Society recommended terminology for Urodynamic studies. For the convenience of those whose clinical protocols do not carry out all the procedures itemised in the ICS standard, UroReport can be customised, to determine which data points appear in the report. Space is also provided for free-form text comments to be entered.

All report data is conveniently stored within the waveform file and is loaded automatically when a file is opened.

## 2. CONFIGURING THE REPORT

To create a report you must first launch Uromac, then select *Report Setup* from the *Patient Report* menu as shown in Fig.1.

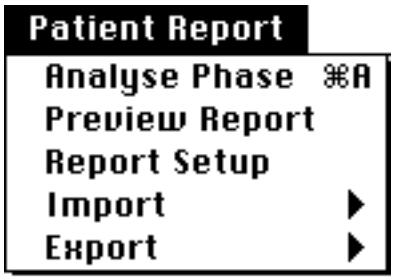



**Fig.1.** Select Report Setup from the Patient Report menu.

After selecting the *Report Setup* window you will see a line of buttons across the top of the dialogue box. These are used to select which of eight different report areas you are viewing.

### 2.1 Customising Comments

The *Customise Comments* function enables the user to create and alter definable pop-up menus. These can be used for storing pre-defined comments in the Video and Comments phase, as well as a pre-defined lists of Doctors, Technicians, and Locations within the Patient and Report Demographics.

The pop-up *Set* menus contains comments (ie. Comment and Video comment Phase) or report setup information (ie. Referring Doctor, Department, Hospital/Institute).

***Note:*** *The pop-up Set menus are empty when you first start Uromac, and stay empty until the user defines them through the Customise Comments window and saves the options with the settings file.*

To customise comments select the *Report* option of the *Report Setup* window, as shown in figure 2 below.

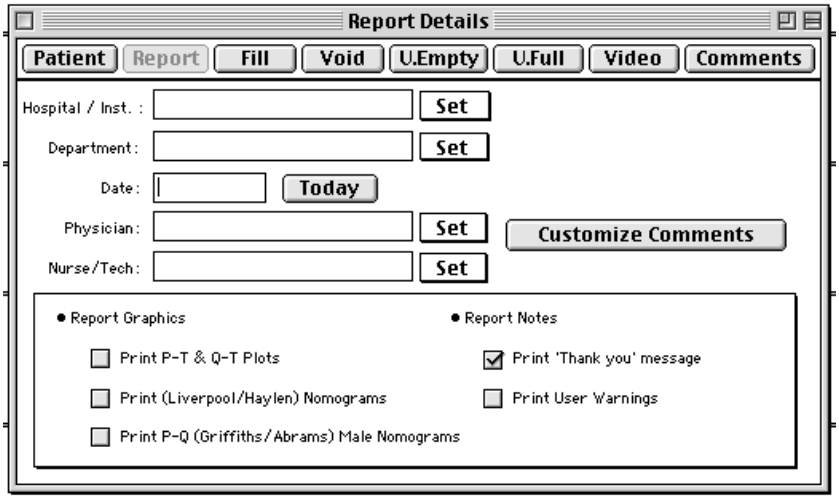



**Fig.2.** Report Setup window.

Press the *Customise Comments* button to the right of the window. You will then have the following window appear.

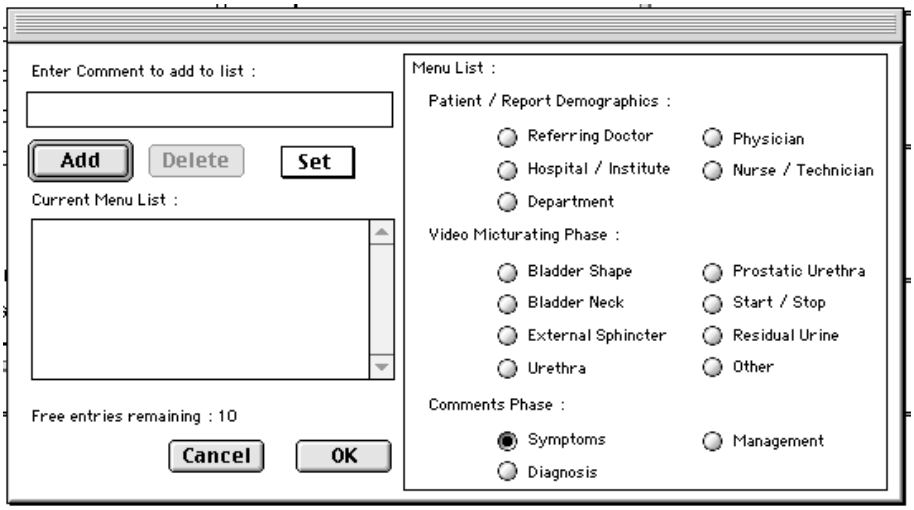



**Fig.3.** Customise Comments window.

The radio buttons on the right show the comment areas that can be customised. In the lower right corner of the window is a number that shows the available comment spaces free in each list. The pop-up menu shown by the *Set* menu contains a list of pre-defined comments and terms from which the user can form a customised list. Further, the user can combine these items with their own free text to generate their own list. This list is then accessible at the time of patient report generation.

To enter comments into a desired list, you must first select the list that you wish to edit (ie. select a radio button, for instance 'Refering Doctor'). The items being added to the selection list are displayed in the editable field on the left of the customise window. Note that sometimes the cursor does not display in the Comment entry box, type and test to see if you are in the correct place.

To add a comment to this menu either type in free text, select a predefined comment from the resource list or use a combination of the two. Simply press the 'Add' button and the desired text will appear in the customised list.

To remove a comment from the list, simply click on the comment you wish to remove in the list, and click the 'Delete' button. Alternatively to edit a comment that has been added to the list, click on the comment and then alter the comment and click the 'Add' button.

***Note:*** *As you add comments to the list the amount of available space will begin to decrease.* ***A maximum amount of 10 entries are allowed per list.***

Switch between lists at any time by clicking onto another radio button.

Once the list has been created, press 'OK' to save the lists and to exit the Customise window. Click the 'Cancel' button if you want to exit without saving the changes.

***Note:*** *Save the customised report comments*

It is essential to save the report customisation to a settings file (refer to your *Uromac User's Manual*, and the section on Saving the Setup). These changes will need to be implemented and saved in each settings file you use.

## 2.2 Patient Demographics

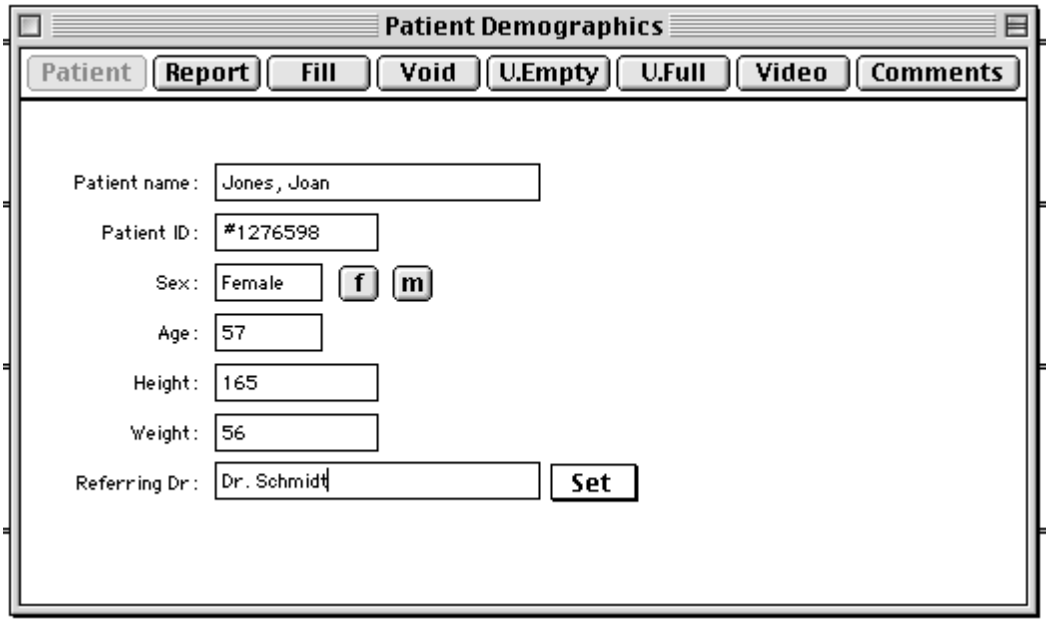



**Fig.4.** The Patient Demographics entry window.

You can now enter the patient's information into the fields shown. Any keyboard characters or numbers can be used in any of the fields, however it is preferrable not to enter more text than can be viewed in the boxes provided. Additional text will be stored but may not be printed on the final report.

The following formats for your entries are suggested but not required. These formats will allow data to be exported to other programs in a meaningful and standardised way.

| | |
|---|---|
| **Patient name** | as "Surname Firstname" |
| **Patient ID** | your ID or UR number format |
| **Sex** | "Male" or "Female" - **Don't type, select the option**. |
| **Age** | in years |
| **Height** | in cm's. ie: "186 cm" |
| **Weight** | in kg's. ie: "67 kg" |
| **Referring Dr** | as "Firstname Surname" |

Note that if you have previously named the file using the main file menu, that name will automatically appear in the patient name field. This field can be edited by simply deleting the Patient Name field and entering your own data.

When all the patient demographic information has been entered, press **Report** to step to the next data entry page (Fig. 4). Alternatively you can use one of the top eight buttons to step between consecutive pages.

## 2.3 Report Details

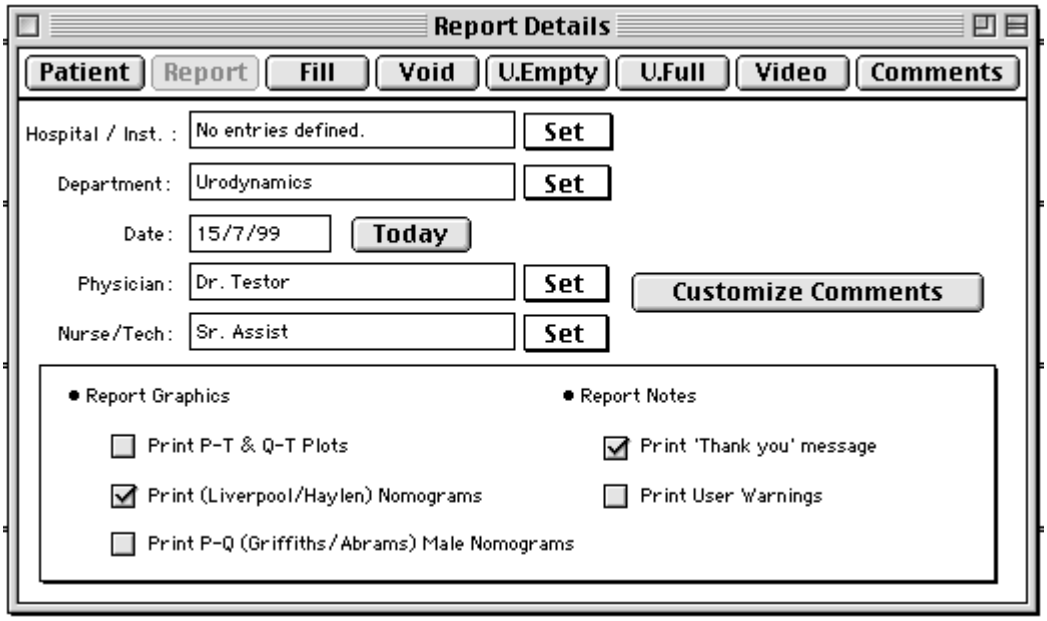



**Fig.5.** The Report Details entry page.

Enter the required information into each field either by free text or by using the previously customised 'menu selection lists'. The Hospital/Institution and Department fields can be changed as required, but will default to the last values entered when the settings file is saved. If different departments share the same system, they can save individual Uromac settings files containing the correct information.

Press the **Today** button to insert today's date automatically. Alternatively, the date can be manually entered in any desired format.

You must select which relevant graphs/nomograms of void data you require to be printed in the final report, by checking the relevant check boxes at the bottom of the window. Note that at the time of publication the check box for 'Print User Warnings' performed no function.

## 2.4 Fill Phase

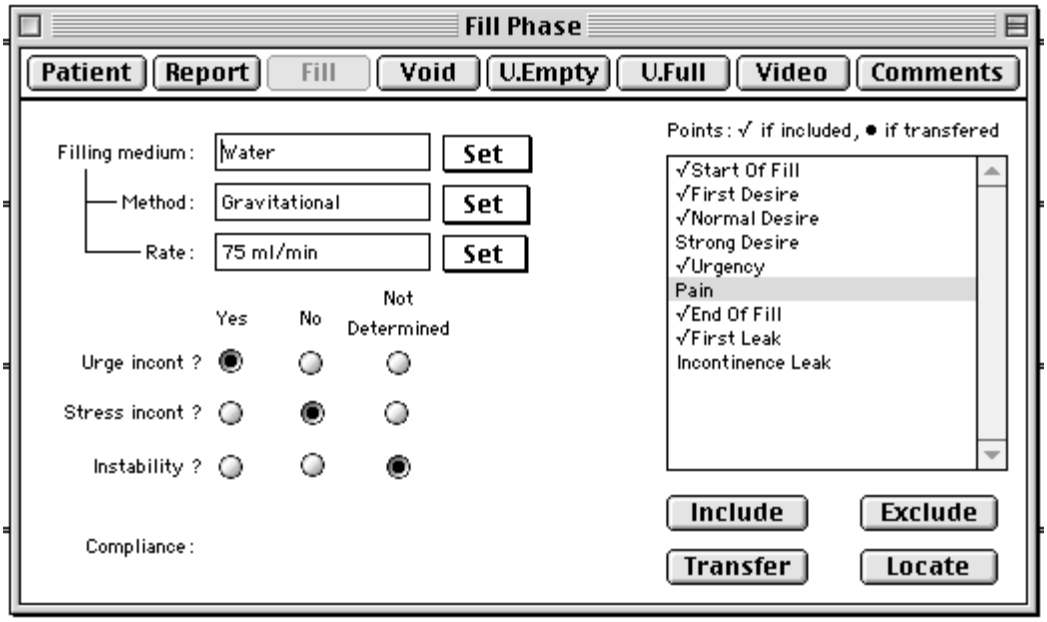



**Fig.6.** The Fill Phase data entry page.

The Fill Phase is used to analyse the waveform data collected while the bladder is filling. It is recommended that at least the filling medium, method and rate are nominated. These three parameters will retain default values when the report settings are saved (Refer to section 6 : "Saving the Setup").

**Filling medium**

The solution used to fill the bladder.
**Set** menu: "Water", "Saline" or "Other".
If "Other" is selected the user may enter free-form text.

**Method**

The method of transferring this solution to the bladder.
**Set** menu: "Gravitational", "Pumped" or "Other".
If "Other" is selected the user may enter free-form text.

**Rate**

The rate at which the bladder is filled in units of ml/min.
**Set** menu: "Calculated","25,50,75,100 ml/min" or "Other"
If "Calculated" is selected the rate is calculated from the actual change in Vfill and time raw data. If "Other" is selected the user may enter a numeric value.

**Event Comment**

Use the check list and **Include/Exclude** buttons to build the events required to be listed in the final patient report.
**Note:** If an event comment key is not used during the patient filling phase and that comment has been incuded on the transfer list, a small floating window will appear on screen during auto analysis, requesting the user to either enter that point (by double clicking at that point, if known, on the waveform display) or ignoring it by clicking the 'skip' button in that floating window. See the section Report creation and data transfer for more details.

**Referral Statements**

Urge incontinence/ Stress incontinence/ Instability.
Click on the button appropriate for the current patient.

## 2.5 Void Phase

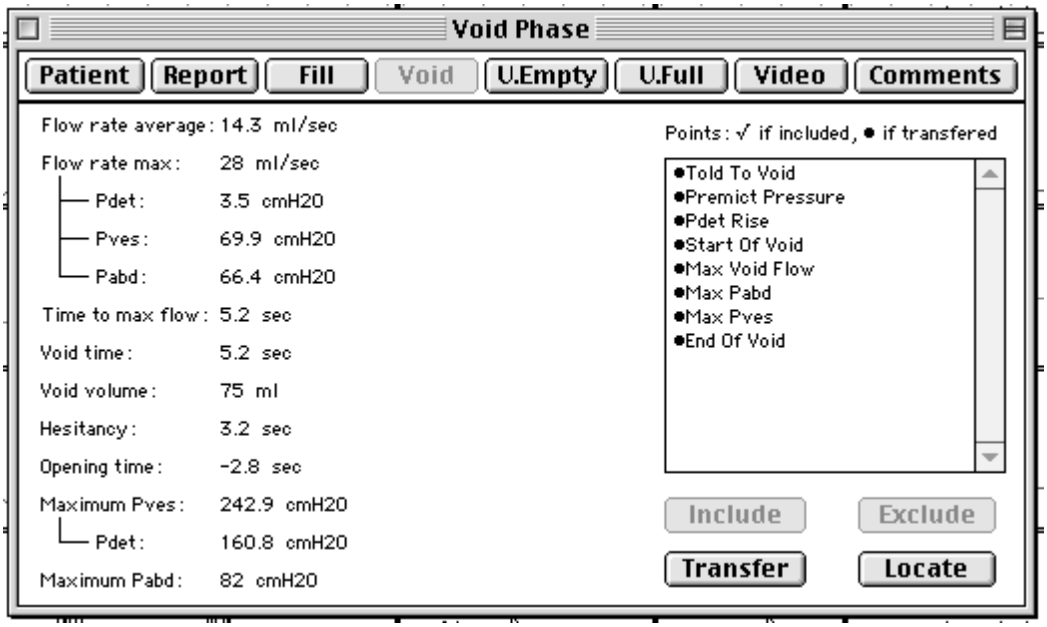



**Fig.7.** Select Report Setup from the Patient menu.

Analysis of the Voiding phase requires no additional user information, only the transfer of a set of data points. See the section titled **Data Transfer** for more details.

**Event Comment**

Use the check list and **Include/Exclude** buttons to build the events required by your testing protocol. Usually all of these events are required.

## 2.6 Urethral Pressure Profile

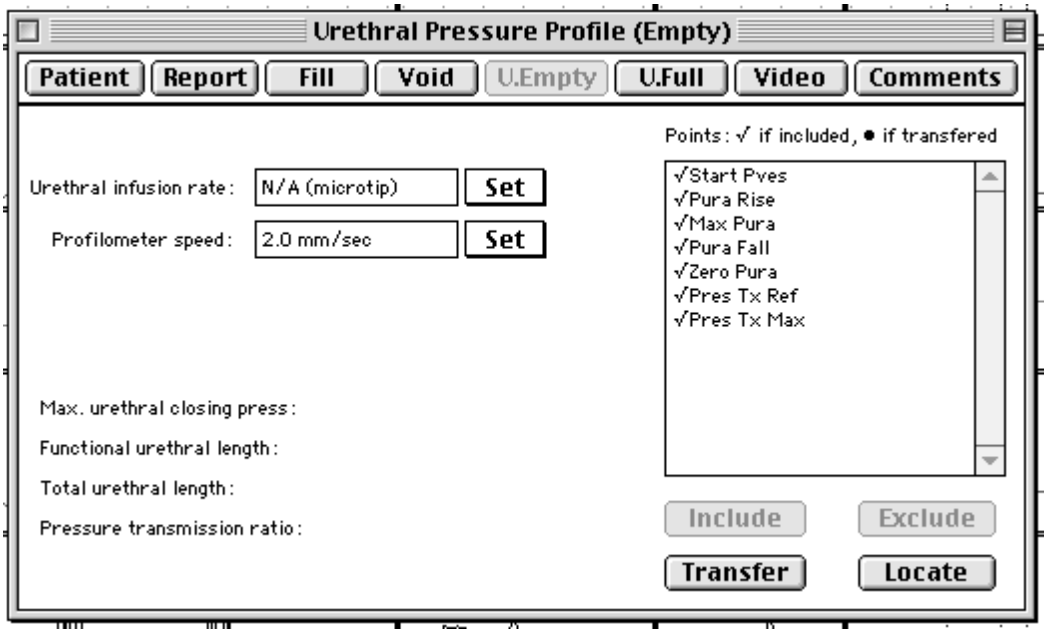



**Fig.8.** Select Report Setup from the Patient menu.

There are two Urethral phases available, the Empty and Full phases, for testing with an empty and full bladder. These two phases have identical data windows so are discussed here together.

The Profilometer Speed is required to be entered in order to calculate the urethral length. The Urethral Infusion Rate is relevant only to perfused lumen fluid filled catheter use and is not used in calculations. The infusion rate selected will be printed on the report. Values entered for these parameters will be retained as default values when the report setup is saved. (Refer to section “Saving the Setup”). If the values are different for the current test, select as required. They will not be saved as defaults.

**Urethral infusion rate** Numeric value required (ml/min.)

**Set** menu: "1, 5 10 ml/min" or "To match the infusion speed used in your testing protocol usually it is 5ml/min". If "Other" is selected, enter the rate used.

**Profilometer speed** Numeric value required (mm/sec.)

**Set** menu: ‘0.2, 0.5, 1.0, 2.0, 3.0 mm/sec’ or "To match the withdrawal speed selected on the withdrawal unit". If "Other" is selected, enter the speed used.

## 2.7 Video Micturating Cystogram

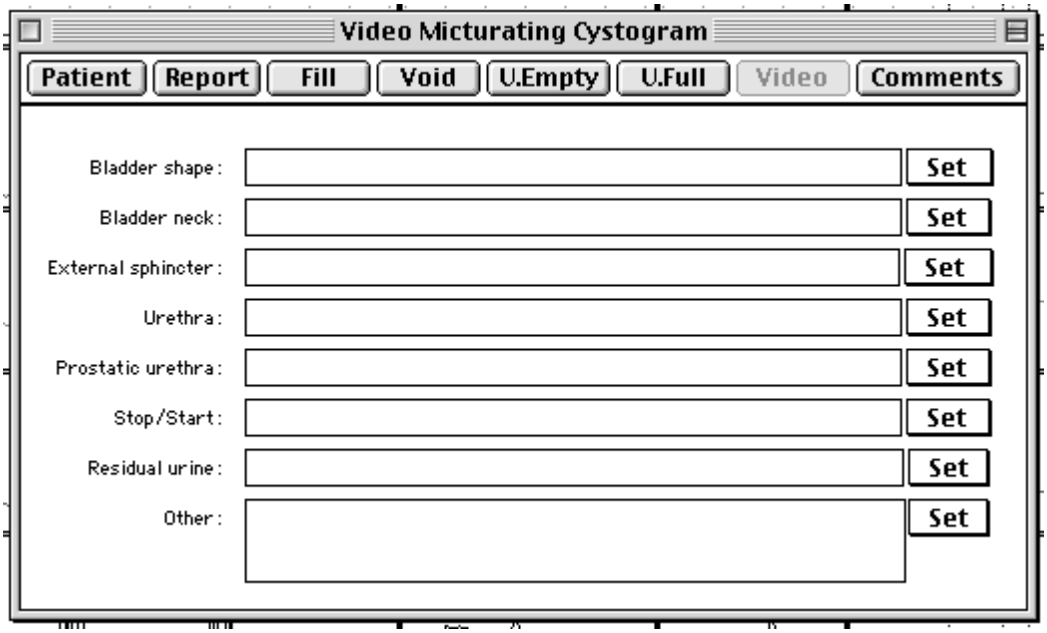



**Fig.9.** Select Report Setup from the Patient Report menu.

This window is used to record observations from the optional AcquiVideo radiography image display or other Urodynamic video sources. All entries are free-form text but again care should be taken not to type more characters than can be viewed in the box provided. Additional characters will be stored but may not be printed on the final report.

If no observations are recorded the Video Micturating Cystogram section of the final report will be omitted rather than showing blank fields.

***Note:*** *To use text/statements already stored in your customised 'Menu Selection List' press the Set menu and select from the menu. (Refer to section "Customising Comments")*

## 2.8 Summary Comments

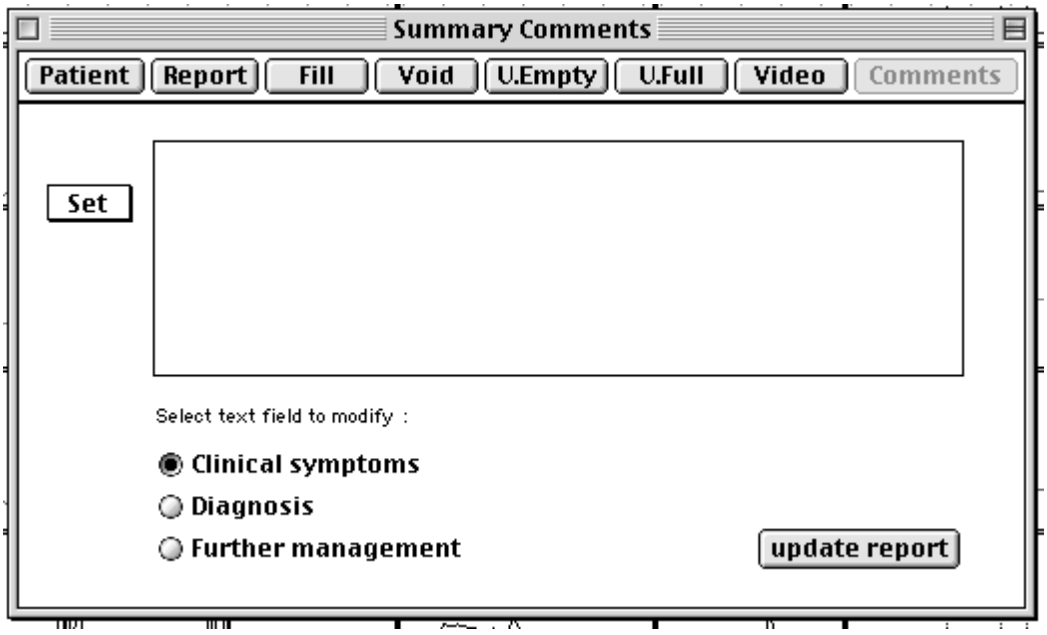



**Fig.10.** Select Report Setup from the Patient Report menu.

The summary comments window gives you the opportunity to enter extended text comments of up to 255 characters or about 9 lines per box. Some commonly used comments are available for insertion from the set menus. These comments are formatted and printed at the bottom of the patient report.

These comments are optional and if no comment is entered, the relevant section of the report is omitted, rather than showing empty fields.

Once you have entered information into a field, toggle between the comment fields by selecting the radio buttons for each. Upon completion press *Update Report* to ensure the report is refreshed with the new comments/changes.

***Note:*** *To use text/statements already stored in your customised 'Menu Selection List' press the Set menu icon and select from the menu. (Refer to section "Customising Comments")*

# 3. REPORT CREATION AND DATA TRANSFER

## 3.1 Analysing your data:

To assist in the explanation of how to analyse your report data we have classified comments as either

a) **Measurement Events**, such as 'max Pdet rise' which can be determined from the physiological recording, and

b) **Patient Events**, such as 'Urgency' which record the state of the patient which could not be determined from the patient record.

Recommendations for data analysis in UroReport:

If your recorded patient data is good quality and the data contains little artefact or physiologically ambiguous data, the fully automated software analysis will give good results. Otherwise a combination of manual and automated (or even fully manual) analysis may be more appropriate. In either case, we recommend that the user inspects the patient record and the final report before accepting the report's results. If you have doubts about the reliability of the software's analysis, you may prefer to make manual selections of the Measurement Events. In this instance (as a **worst case**) the number of manual measurements (each requiring a double mouse click on the correct point on the waveform) would be:

Fill Phase (2 points)
Void Phase (5 points)
Urethral Phase (7 points)

From someone familiar with a urodynamics recording this takes under 15 seconds for both Fill and Void phase, and less than 15 seconds for the Urethral phase. Adopting this protocol will ensure the most reliable report generation.

*DURING ACQUISITION OF THE PATIENT RECORD:*

Insertion of Patient Event Comments:

Patient event comments should be entered into the patient record during the patient recording at the appropriate time. The user may choose the predefined (ICS) patient event comments from the keyboard template using the function ('F') keys. These include 'First Desire to Void', 'Normal Desire' or 'Urgency', during the filling cystometrogram phase or 'Told to Void' in the voiding phase. Free text event comments using the keyboard and the 'return' key can also be inserted. Measurement event comments are **not** entered during patient data acquisition. Whilst recording we do not recommend stopping acquisition in the middle of a phase as this could result in time related errors in some calculations (see the appendix on Troubleshooting).

*AFTER ACQUISITION OF THE PATIENT RECORD:*

Analysis of the data and event comments:

Select (highlight) the waveform area across the area of the waveform (ie. the phase) you wish to analyse. Ensure the selection includes at least a couple of seconds of resting (baseline) data before and after the event, such as flow or vesical filling volume.

Select 'Analyse' from the Patient Report menu (or the Toolbar). This operation will insert a comment at the beginning and end of that selection (ie. 'Begin Fill Selection' and 'End Fill Selection', or 'Begin Void Selection' and 'End Void Selection') , these are indicators for the software to know the bounds of the phase selection you have chosen.

Reviewing the waveform display you will see new vertical dotted lines and the associated comment boxes under the points on the waveforms. These are the comments that the software has selected for the analysis. Check that you agree with the position of the measurement points in the record. **If not,** you can remove and replace each of

the comments in a selected phase by reviewing the points sequentially in the manual analysis mini-window as described in the next section.

Removing and re-entering Event comments:

If a measurement point in the phase selection is not in the correct position, use the manual entry mini-window to clear and re-enter it. The miniwindow will appear after the data is analysed or if 'Analyse' is clicked with no data selected. Use Prev and Skip to move between comments and Clear to delete a comment. For a detailed description of the use of the mini-window refer to the section below "Checking the data points transferred".

When viewing the mini-windows, note that where a solid dot precedes each Event this indicates that the value has already been transferred (ie. detected or measured). The transferred data is also indicated in the patient record by a flashing bar beneath the comment box (at the base of the waveform data).

If you make any changes to the comments it is necessary to re-analyse the phase prior to displaying the report, or none of the changes will take effect. Again, highlight the area encompassing the phase event comments (including any new comments), then select 'Analyse' from the 'Patient Report' menu (or the toolbar).

Placing Event comments manually:

Event comments can be inserted manually to assist the software in finding events. It may be more efficient not to rely on the software to find an event if you already know where it is, particularly if the patient waveform data contains recording artefact (making software detection more difficult). It is particularly useful to mark the start and end of each phase (fill and void) and the start and end of each pressure or flow event, or measurement reference points such as Pdet rise.

Event comments are inserted by either 1) clicking on the waveform at the point of measurement value to leave a blinking cursor marker, and then pressing the relevant predefined function ('F') key on the keyboard, or 2) by using the manual entry mini-window (refer to the section "Checking the data points transferred"). Select the desired phase and step through the options, inserting the points which can be identified one by one.

Preview and Print the Report

Select Preview Report from the Patient Report menu and check the report results. If necessary close the report, open the Report Setup menu and enter phase comments, or other options. Close, and preview the report again. Once complete, whilst the report is being previewed, select Print Report from the File menu. Close all windows and save your data.

Report Messages:

Note that during analysis and when previewing reports messages will occasionally appear to prompt the user for additional information, or to inform the user of problems with the analysis. The most common messages are described in appendix C.

**Summary:** **To analyse the patient record:**

Step 1: Insert Patient Event comments during acquisition using the function (F) keys.

Step 2: Insert Measurement Event comments from the keyboard template, or select ANALYSE and then insert, or clear, Event comments as necessary via the manual analysis miniwindow.

Step 3: Highlight the phase to be analysed.

Step 4: Select 'Analyse'.

Step 5: Review the comments using the miniwindow, or 'Preview' the report results.

Step 6: Whilst previewing the report, select Print Report from the File menu.

Repeat steps 2 to 5 if necessary, until you are satisfied with the results.

## 3.2 More on automatic analysis

***Note:*** *Automatic analysis is only available on the Filling and Voiding Phases. Analysis of the Urethral phases must be performed manually by the user.*

If a selection of the waveform is highlighted and analysed the UroReport software will attempt to find and analyse data based on the criteria described in the appendix "Internal Calculations". It is suggested that the user insert all Patient Events using the select/F-Key operation (see the section "Analysing your data" above), select the area and analyse. The phase will be offered and results found. A mini-window will appear to offer the option of inserting points not found. If the auto transfer encounters a problem such as the desired comments not being in the correct place, or that the phase data may be questionable, then UroReport will inform you and give you the option to transfer any phase data points manually. At this point you must select points on the waveforms corresponding to the points in each phase as displayed in the manual Transfer data entry window shown in Fig.14. You will be prompted for all the points you had **Include**'ed in each phase of the Report Setup (see section 2.) and discussed in 'Data Points Transferred' below.

## 3.2 More on manual analysis

The second method of transferring data is to manually highlight the waveform for each phase you wish to transfer and then to simply click the 'Analyse' button on the toolbar (shown in figure 11). The software will detect if this is an appropriate phase and will also prompt the user to confirm the particular phase and to complete the transfer of data points above.

**Fig 11.** : Toolbar Buttons (Left Button : To open the Report Setup Window, Right Button : To Analyse the Selected Waveform, or to open the Manual entry Window).

## 3.3 Checking the data points transferred

As you will have already seen, each phase's window has a list of data points on the right hand side. These lists indicate points in the phase which must be identified in order to calculate all the parameters presented in the report.

For studies that do not require (or record) all points, the list can be edited using the **Include** and **Exclude** buttons to add or remove points that are not desired. These selections can be made permanent by saving the Uromac setup. Fig 12 explains the various notations shown for points in the transfer list of each phase.

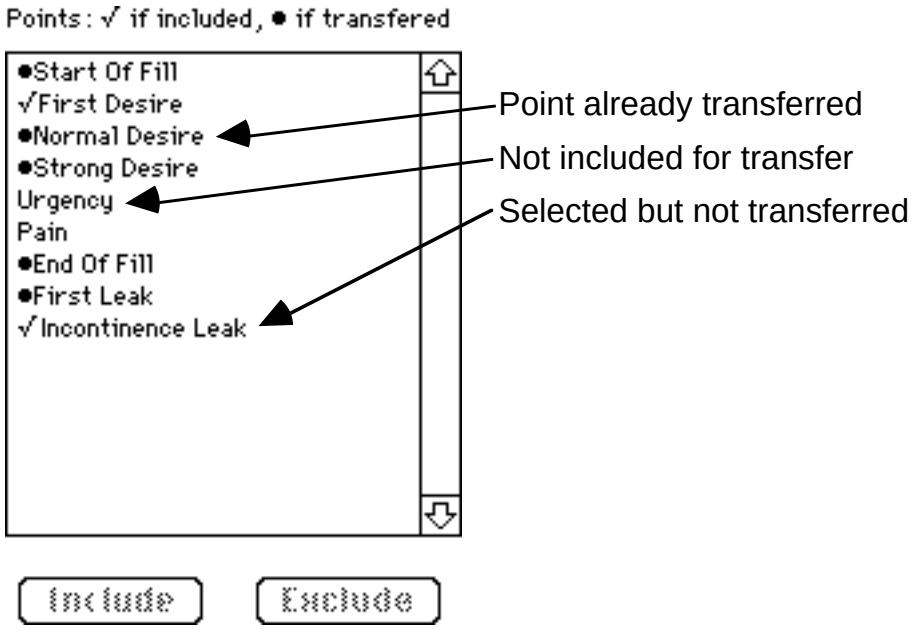



**Fig.12.** Transfer tools

When the desired points have been selected for transfer, press the **Transfer** button at the bottom of the UroReport Window. The main report window will disappear and a smaller data transfer window will appear over the top of the chart waveform window. Depending on whether **Transfer** was pressed from within a test phase, or after a transfer phase has been selected the window will appear as in one of the following two figures.

If you see the Transfer Phase Selection window, simply press the button corresponding to the phase you wish to transfer, or you can highlight the section of the waveform you wish to Analyse and then simply click on the appropriate button to go to the next phase, or simply hit **Report** to return to the report setup window.

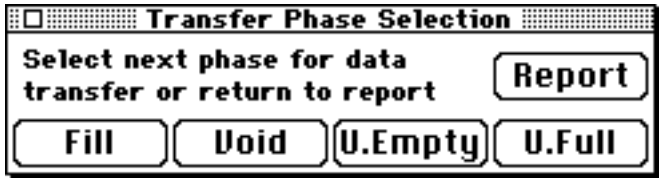



**Fig.13.** Transfer phase selection window.

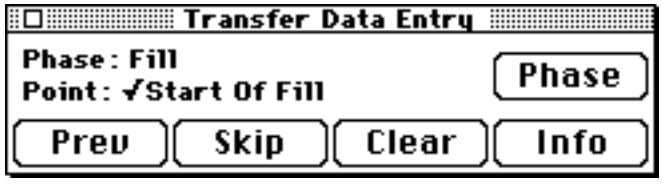



**Fig.14.** Transfer data entry window.

If the Transfer Data Entry window is visible, you are ready to transfer data for the specified points manually. To transfer a point, simply locate the place on the waveforms corresponding to the specified point and the double-click the mouse on the desired point on the waveform. The menu bar will flash and the Transfer Window will

advance to the next required point (for details on scrolling over the waveforms see the Uromac Users Manual).

To return to a previous point on the list, press **Prev**.

To skip over a point without having to double-click it, press **Skip**.

To remove a double-clicked point from the report, press **Clear**.

To obtain a short description of the current point, pressing **Info**.

**Fig.15.** Information for a specific point.

All the selected data points for each tested phase should be transferred before a report is printed. Points which are not transferred will not be included in the report and all calculations based on these points will also be omitted.

## 4. SAVING A REPORT

The contents of the Report are automatically saved along with the waveform data when Save is selected from the File menu. For security, after generating a report you will not be able to quit Uromac application without saving the data. Note that you should correctly quit Uromac before turning off the system power, as the loss of power to the computer before saving a report will result in loss of all unsaved data.

A file name must be given to each new file/patient. We recommend using the patient name as entered in the Patient Demographics window, followed by the date. ie: "DOE Jane 21/2/94" (the date is used to allow repeated tests or repeated report generation on the same patient from the 'File Open' menu).

The operator must also choose where to save their data files. We recommend saving the patient files inside the Uromac Folder called "Patient Files". If all data is stored in this folder, the operator can use **View** by **Name** or by **Date** from the Finder to sort and search for patient data. See the section on "Archiving Your Data" for details on backing-up patient files from your hard disk drive to other permanent storage such as floppy disks.

***Note:*** *In previous versions of UroReport, the user has to create a "Patient Folder" inside NMS Uromac V3.x.x folder.*

## 5. SAVING THE SETUP

If you edit setup items in the report and wish these changes to be set as default, you must save the setup, by creating a settings file. When a setup is saved it includes not only defaults for the UroReport, but also the calibration values and the setup details of the Uromac file. Be sure that everything is as required before saving the settings file. The recommended way of changing the settings is to launch Uromac, open a new, untitled file, make only the changes that you require and then immediately save the setup as a settings file into the calibration folder.

### Saving the Setup as a Settings file

1. Open an untitled file
2. Make all the desired changes to the untitled file, including items such as scrolling speed, transducer calibration factors, compression ratio and UroReport settings.
3. When you have completed making all the changes required, go to the Save Menu under the File Menu and select it. An option window will appear as shown in Fig. 16.
4. Select 'Settings File' from the File Format window as shown below and then enter a descriptive file name for the settings file.
5. You have now completed the settings file. To launch using this as the default settings file, double click on the required settings file in the calibration folder and the computer will launch Uromac.

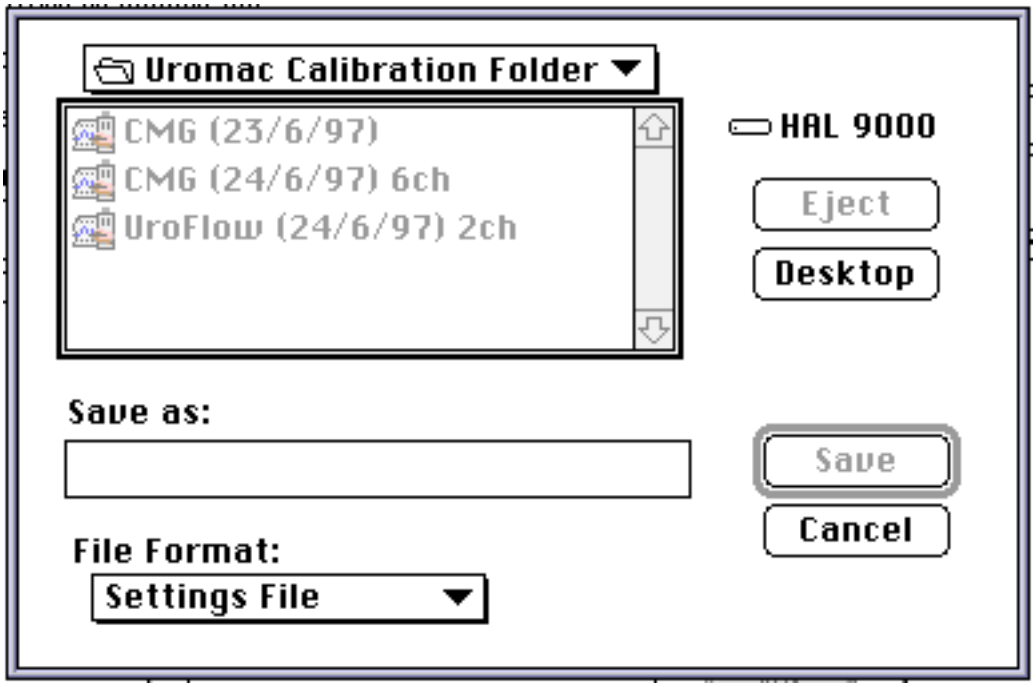



**Fig 16.** Save window under the File Menu

## 6. PRINTING / PREVIEWING A REPORT

To preview the report form prior to printing it, select **Preview Report** from the **Patient Report** menu as shown below. The Report Preview window will appear and the report is shown exactly as it will be printed. You may need to scroll down to view the additional pages of the report. It is not necessary to preview a report in order to print it.

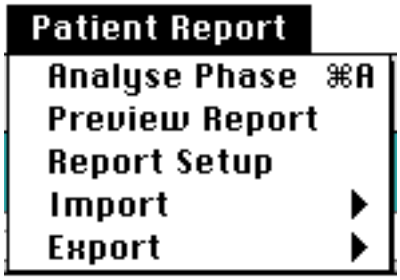



**Fig.17.** Select Preview… from the Report menu.

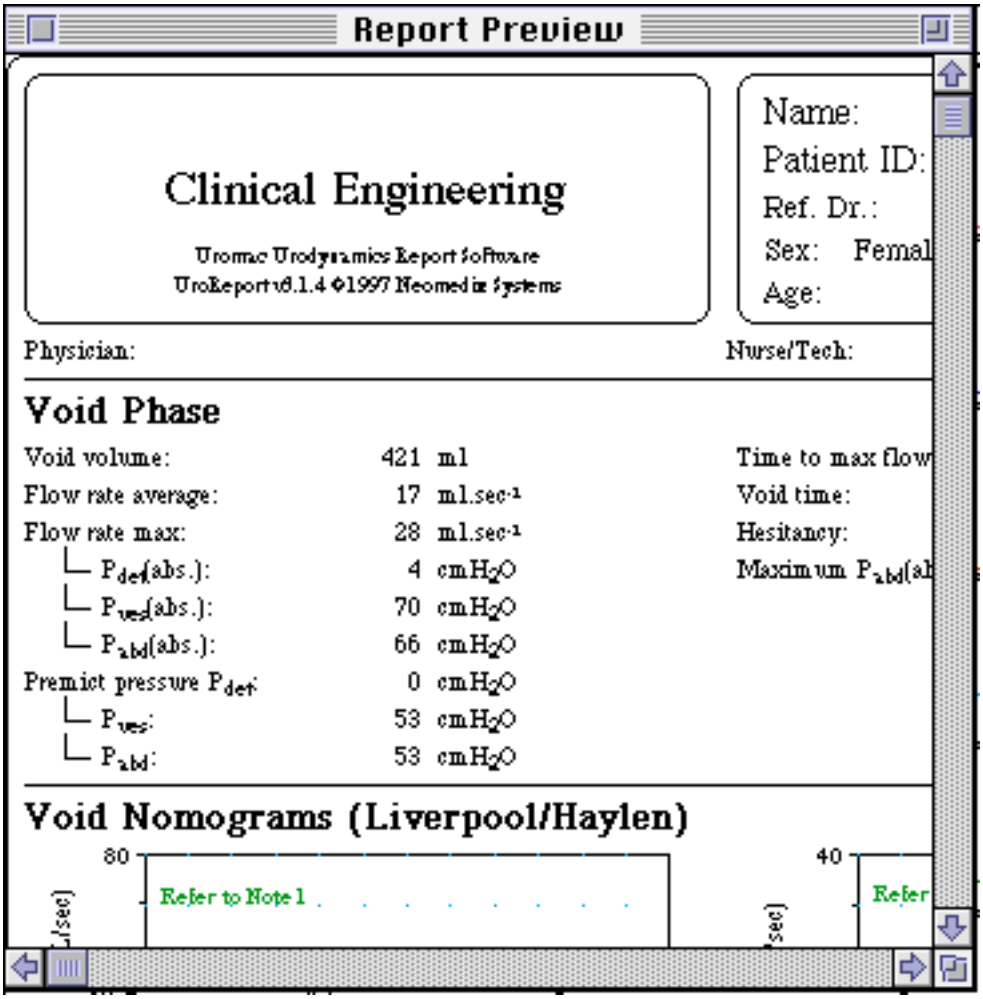



**Fig.18.** Preview Window

To print the report select **Print Report** from the **File** menu. The window which follows depends on the type of printer you are using. See your Macintosh

manuals for further details. If you have difficulties you may like to refer to the Appendix "Problems and Possible Solutions".

***Note:*** *Printer selection is from the 'Chooser' under the 'Apple' menu.*

## 7. OPENING AN EXISTING REPORT/FILE

To open an existing Report or Uromac File, double-click on the patient data file from within the patient folder on your Macintosh. The file will launch Uromac (if not already running) and automatically load. The Report can then be edited or printed as usual. If Uromac is already running select **Open... ⌘O** from the **File** menu, select patient file and then review the Report section.

***Note:*** *Having opened an existing file, that files preferences become the current preferences.*

## 8. EDITING A REPORT

Report text can be edited by selecting the Patient Report, Report Setup menu from within an opened file and fields editted as required. To save these changes the file must be saved.

Data points may also be edited by selecting Patient Report, Report Setup and then the appropriate phase. From within the phase window select *Transfer* to allow manual modification of the values by selecting the measurement point (usually by skipping through the points) then click 'Clear', click previous, and double click the correct value point. Alternatively, the automatic analysis mode can be used to overwrite the previous values. For more information on this process see the section on **Data Transfer**.

## 9. ARCHIVING DATA

During normal operation, patient files are stored on the computers internal hard disk. Current system hard drives have a capacity of approximately 2000 patient files, depending on the particular disk size, chart speed, and test duration's. This means that archiving of files can be deferred for some time, but backing up should become a standard habit from the start of use of the Uromac. A possible strategy is to copy the latest patient files to floppy disk at the end of each week (or month). These diskettes (which will each hold about 30 or more urodynamics test) should then be labelled and stored. The original files can then be removed from the hard drive.

A preferable strategy is to use an external archive drive such as a Iomega Zip or Jazz drive. These utilise relatively low cost removable disc media of 100Mb or 1Gb respectively.

Separately making a periodic backup of all your settings file(s) and application is also advised to allow easier reconfiguration, should there be hard disk corruption or failure. Use of a third party backup utility is also highly recommenced as it can be set to automate the process.

## 10. IMPORT/EXPORT

UroReport has the facility to export data as formatted text files which can be imported into other applications such as databases, spreadsheets or wordprocessors. There are several different options all available by selecting **Import** or **Export...** from the **Patient Report** menu.

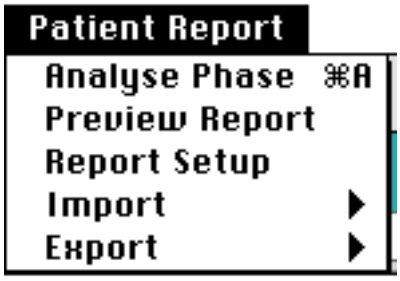



**Fig.19.** Select Import or Export… from the Patient Report menu.

Each Item (Import and Export) has its own separate Menu as outlined in Fig 19 and 20.

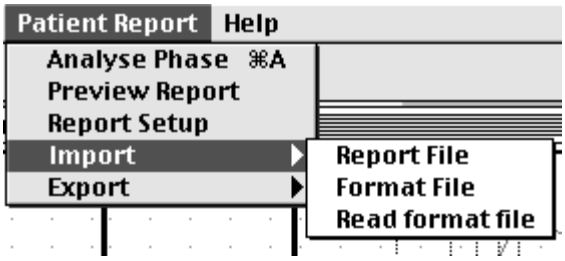



**Fig.20.** The menu of the Import Item

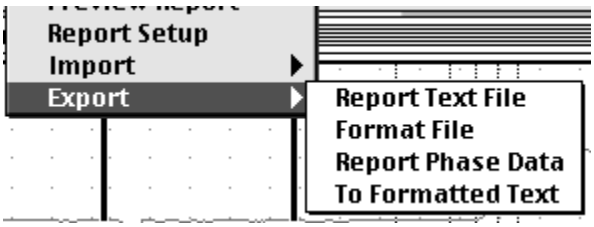



**Fig.21.** The menu of the Export Item

## APPENDIX A : INSTALLING UROREPORT

***Note:*** *Before installing or using UroReport you must have* ***Uromac*** *version 3.6 software on your computer's hard-disk. See the Uromac Manual for details of how to install Uromac or how to determine which version of Uromac you have installed.*

UroReport installation requires the installation of the UroReport extension file from a floppy diskette (or other media) into the same folder as your existing Uromac software on the computer hard disk. This may mean replacing an earlier UroReport extension if one is already installed.

Step-by-Step installation process.

1. Insert the UroReport installation disk into the floppy disk drive. Double click on the floppy disk icon and locate the UroReport installation icon.

2. Double click on the installation icon to install UroReport.

3. To check the installation, launch Uromac and select "About Uromac…" from the Apple menu. Click on the jigsaw shaped extension button which will appear. You should see UroReport listed as one of the installed extensions. To check the version of UroReport, click on the UroReport entry and the version will be displayed. A "Patient Report" menu should also appear in the menu bar at the top of the Uromac Screen.

4. UroReport is now ready to be used.

## APPENDIX B : INTERNAL_CALCULATIONS

This appendix describes the internal calculations used to report on the acquired data. All possible attempts are made to conform to "The standardisation of the terminology of the lower urinary tract function" by the International Continence Society Committe on Standardisation of Terminology. Where there is an inadequate description here, please refer to this document (available from the ICS) for further information.

### B.1 Phase_Detection_Criteria:

The criteria used by UroReport to identify a phase are listed below. If a phase comment is found in the selection being analysed, this comment has priority and will define the phase (e.g. if Told to Void is in the selection a Void phase will be assumed), otherwise if a phase can not be determined the software will prompt the user to select a phase and the data points manually.

**Fill Phase:**
Within the highlighted selection of data:

1. Void volume must be less than or equal to 5mL.
2. Fill volume must be greater than or equal to 20mL.

The report software will not check any other data.

**Void Phase:**
Within the highlighted selection of data:

1. Voided volume must be greater than 3mL.
2. Voided volume must be greater than or equal to 50mL.

The report software will not check any other data.

**Urethral Full Phase:**
Within the highlighted selection of data:

1. Voided volume must be less than 10mL.
2. Fill volume must be less than or equal to 50mL.
3. Maximum Pura pressure[#] must be greater than 20cmH20.
4. Start of Fill[#] must be greater than 100mL.

The report software will not check any other data.

**Urethral Empty Phase:**
Within the highlighted selection of data:

1. Void volume must be less than 10mL.
2. Fill volume must be less than 50mL.
3. Maximum Pura pressure[#] must be greater than 20cmH20.
4. Start for Fill[#] must be less than or equal to 100mL.

The report software will not check any other data.

***# refer to section B.2 below for an explanation on how these points are determined.***

The table below summarises this information:

| **Phase** | **Maximum voided volume** (mL) | **Change in said volume** (mL) (Taken from start of selection to end of selection) | **Maximum Urethral Pressure** (cmH20) | **Starting Filling Volume** (mL) |
|---|---|---|---|---|
| **Void** | **>=3** | **>=50 (void)** | **Not used** | **Not used** |
| **Fill** | **<=5** | **>=20 (fill)** | **Not used** | **Not used** |
| **Full** | **<10** | **<50 (fill)** | **>20** | **>100** |
| **Empty** | **<10** | **<50 (fill)** | **>20** | **<=100** |

## B.2. Data Point Descriptions:

This section provides a description of all the data points, for each phase, accepted by the UroReport software.

### Fill Phase

#### *Definitions:*

| | |
|---|---|
| Start_Of_Fill | "Fill started, bladder commences filling" |
| First_Desire | "Patient indicates first sensation of bladder filling" |
| Normal_Desire | "Patient indicates normal desire to void" |
| Urgency | "Patient indicates fear of leakage with further filling" |
| Pain | "Patient indicates pain at current bladder volume" |
| End_Of_Fill | "Fill stopped, bladder at maximum tolerated volume" |
| First_Leak | "First leakage detected" |
| Incontinence_Leak | "Sustained leakage occurred" |

#### *Derived Data Points:*

Time derived

| | |
|---|---|
| First Desire | = Event.Time - Start of Fill.Time(secs) |
| Normal Desire | = Event.Time - Start of Fill.Time(secs) |
| Urgency | = Event.Time - Start of Fill.Time(secs) |
| Pain | = Event.Time - Start of Fill.Time(secs) |
| Total Fill Time | = End of Fill.Time - Start of Fill.Time(secs) |

Fill Rate

= (End of fill Vol. - Start of fill Vol.) / (End of fill Time - Start of fill Time) (mL/min)

Compliance

= (End of fill Vol. - Start of fill Vol.) / (End of fill Pdet - Start of fill Pdet) (mL/cmH2O)

Volume derived:

| | |
|---|---|
| Vesical Capacity | = Vol.fill(end of fill) - Vol fill(start of fill) (mL) |
| First Desire | = Vfill @ event (mL) |
| Normal Desire | = Vfill @ event (mL) |
| Urgency | = Vfill @ event (mL) |
| End Of Fill | = Vfill @ event (mL) |

Comment Fields:

Fill Medium

comment field indicating the fluid medium entered in the filling phase.

Fill Method

comment field indicating the filling method (e.g. Gravity, Pumped, other).

Urge, Stress, Incontinence or Instability

clinical determination selected as report comment.

Detected comment data points:

Predefined user entered comments, added to the recording will are sought and used for analysis during a fill phase. For each comment located, three measurements are taken (Pressure, Time and Volume) or calculated:

The following comments are sought:

- First Desire
- Normal Desire
- Strong Desire
- Urgency
- Pain

End Of Fill
First Leak
Incontinence Leak

Algorithm for determining data points:

*Start Of Fill:*

Defined as the first point in the fill volume waveform which exceeds a threshold defined by the equation:

threshold = Vfill.min+ ((Vfill.max - Vfill.min) * 10%)

Start of Fill is then determined by seeking the first minima prior to the threshold within the selected time.

*End Of Fill:*

Defined as the first point in the fill volume waveform which exceeds a threshold defined by the equation:

threshold = Vfill.min + ((Vfill.max - Vfill.min) * 90%)

End of Fill is then determined by seeking the first minima after the threshold within the selected time. If the first minima can not be detected then the first point to cross or match the threshold is accepted.

## Void Phase

### *Definitions:*

| | |
|---|---|
| Told_To_Void | "Instruction by operator for patient to void" |
| Premict_Pressure | "Resting values when patient relaxed prior to urine flow" |
| Pdet_Rise | "First indication of detrusor pressure rise" |
| Start_Of_Void | "Commencement of sustained urine flow" |
| Max_Void_Flow | "Max. recorded void flow rate in void phase" |
| Max_Pabd | "Max. recorded Pabd in void phase" |
| Max_Pves | "Max. Pves in void phase" |
| End_Of_Void | "Termination of sustained urine flow, should be zero" |

### *Derived Data Points:*

Time Derived Variables:

| | |
|---|---|
| Void Time | = End of QVoid.Time - Start of Qvoid .Time(secs) |
| Time to Qmax | = Qvoid max.Time - Start of Qvoid .Time(secs) |
| Opening Time | = Pdet rise.Time - Qvoid start.Time(secs) |
| Hesitancy | = Start Of Void Time - Told To Void Time |

Pressure Derived Variables:

Max Detrusor Pressure
= Pdet(during Qvoid)max - Pdet (premicturition) (cmH2O)

Max Vesical Pressure
= Pves(during Qvoid)max - Pves (premicturition) (cmH2O)

Flow Derived Variables

| | |
|---|---|
| Max Flow Rate | = Qvoid max - Qvoid zero baseline (mL/sec) |
| Average Flow Rate | = Vvoid/void.Time (mL/sec) |
| Pdet@ Qvoid Max | = Pdet @ Qvoid max = Pdet premicturition (cmH2O) |
| Pves@ Qvoid Max | = Pves @ Qvoid max = Pves premicturition (cmH2O) |
| Pabd@ Qvoid Max | = Pabd @ Qvoid max = Pabd premicturition (cmH2O) |

Volume Derived Variables

| | |
|---|---|
| Voided Volume | = Vvoid(end of void) - Vvoid(start of void) (mL) |

Detected comment data points:

Predefined user entered comments, added to the recording will are sought and used for analysis during a fill phase. For each comment located three measurements are taken (Pressure, Time and Volume) or calculated:

The following comment is sought:

Told To Void

Algorithm for determining data points:

Note that for the correct location of the following points, ten samples of steady state data must be acquired either side of an estimate of the prediction.

*Start Of Void:*

Defined as the first point in the void flow waveform which exceeds a threshold defined by the equation:

threshold = Qvoid.min+ ((Qvoid.max - Qvoid.min) * 20%)

Start of Void is then determined by seeking the first minima prior to the threshold within the selected time.

*End Of Void:*

Defined as the first point in the void flow waveform which exceeds a threshold defined by the equation:

threshold := Qvoid.min + ((Qvoid.max - Qvoid.min) * 10%)

End of Void is then determined by seeking the first minima after the threshold within the selected time. If the first minima can not be detected then the first point to cross or match the threshold is accepted.

*Premicturition Pressure:*

Defined as the left most point of the selected area.

*Maximum Pabd:*

Defined as the first maxima within the selected time where the pressure range must be greater than or equal to 10 cmH2O and the maximum pressure determined must be greater than or equal to 10 cmH2O.

*Pdet Rise:*

Defined as the first point in the rise in the detrusor pressure waveform, within the selected time, where the pressure range is greater than or equal to 10 cmH2O and the time between the start of void and the start of pressure rise is greater than or equal to 0 sec.

The rise point in the detrusor pressure waveform is that which exceeds a threshold defined by the equation:

threshold := Pdet.min+ ((Pdet.max - Pdet.min) * 10%)

and is determined by seeking the first minima prior to the threshold within the selected time.

*Maximum Pves:*

Defined as the first maxima within the selected time where the pressure range must be greater than or equal to 10 cmH2O and the maximum pressure determined must be greater than or equal to 10 cmH2O.

## Urethral Phases

### *Definitions:*

| | |
|---|---|
| Start_Pves | "Resting Vesicular pressure prior to start of profile measurement" |
| Pura_Rise | "First indication of a rise in urethral pressure" |
| Max_Pura | "The maximum urethral pressure obtained" |
| Pura_Fall | "Urethral pressure falls to starting (resting) value" |
| Zero_Pura | "Lowest urethral pressure value after fall" |
| Pres_Tx_Ref | “Reference value of Pura. prior to stress (cough) change" |
| Pres_Tx_Max | "Maximum Pura. during stress (cough)" |

### *Derived Data Points:*

Time Derived Variables

Functional Urethral Length *(Withdrawal Catheter)*

= (Pura fall to rest.Time - Pura rise above Pves.Time)/withdrawal speed mm/sec (mm)

Total Urethral Length

= Pura fall to Pamd.Time - Pura rise.Time / withdrawal speed mm/sec (mm)

Pressure Derived Variables:

Max Urethral Closing Pressure

= Pura(during UPP)max - Pves(during UPP)max (cmH2O)

Pressure Transmission Ratio

= (Pura (cough) max - Pura transmission ref / Pura (cough) max)*100 (%)

Algorithm for determining data points:

Note that for the correct location of the following points, ten samples of steady state data must be acquired either side of an estimate of the prediction.

*Maximum Pura:*

Defined as the first maxima within the selected time where the pressure range must be greater than or equal to 10 cmH2O and the maximum pressure determined must be greater than or equal to 10 cmH2O.

*Start Pves:*

Defined as the left most pressure, greater than or equal to 0 cmH2O, of the selected area.

## APPENDIX C : REPORT MESSAGES

Messages will occasionally appear to prompt the user for additional information, or to inform the user of problems with the analysis. The most common messages are described below:

**"The gender of the patient is undefined. Please provide the gender to generate the selected plots...'"**
The gender is required to print the Liverpool nomograms as these are age dependent. Enter the age of the patient in the patient details of the report setup menu.

**"Analysis aborted: *phase* has duplicate comments inside the selection. Report must have only one of each. Please delete the duplicate comments and reanalyse the phase."**
This message occurs if there is more than one of the ICS defined Event comments in the phase area you have selected for analysis. For example 'Urgency' may appear twice in the selected Void phase. If this happens it is necessary to remove all but one of these comments. Use the Comments menu to select and delete the applicable comments (refer to you Uromac manual for instructions).

**"The volume voided by the patient is less than 10mL. A greater volume is required to generate the selected plots..."**
This message appears when the initial void volume in the Void phase is greater than 10mL to prevent reporting of false void (volume) data. The message will prompt the user to accept or reject the selected data. If you reject the data no analysis will occur and you have the opportunity to reselect an area which has a more suitable initial volume (ie. typically less than 10mL).

**"The Void Phase area and/or the Fill Phase area has been selected across multiple data blocks, this may cause errors in the reported time and volume figures."**
The black lines which run down the page are block markers. These indicate when the recording has been stopped and restarted, or where data has been deleted. It is not appropriate to analyse across these areas where time dependent information is determined in the analysis (eg. time to end of fill).

**"Notice : One or more report data points were manually selected by the user."**
This message informs the user that some of the events used in the report were inserted manually. These points can be identified by the "*M" suffix in the comment description, which appears in the Comment menu and in the comment box with the waveform data. For example "Start of Fill *M" indicates that this point was inserted manually, rather than found by software analysis.

**"Analyse your selection as a 'phase' ?"**
The analysis has determined that this is a particular phase and is prompting the user to confirm this.

**"The ‘phase’ is already defined elsewhere. Do you wish to redefine it with your current selection?"**
Analysis of the patient record has found that there is another phase of the same type defined elsewhere. If you redefine it, then the software will no longer consider the other phase for the report.

**"‘phase’ comments have been found outside of the current selection. Do you wish to continue by deleting these comments?"**
When analysing a selection for a particular phase, comments which relate to the same phase exist outside the selected area. If you have not highlighted sufficient data, choose NO and reselect the area before analysing. The system does not presently permit more than one of each phase to be defined.

## APPENDIX D : TROUBLESHOOTING

**• There are items missing from the printed report.**

If insufficient data is available to calculate a derived parameter then it will be omitted from the report. Possible reasons for insufficient data are points not being transferred from the waveforms or calibration parameters such as Profilometer Speed not being set correctly.

**• I cannot create a second report for the one urodynamics waveform record.**

This is true. You may only have one report per file. If you wish to create a second report then duplicate the file from within the Finder (Quit Uromac and from the desktop open the hard disk and navigate to the patient record file in question and duplicate from the finders 'File' menu) and then edit the duplicated file to produce a second report.

**• The filling rate is a set value, and is not being updated.**

The filling volume must be calculated after the Fill phase has been analysed. Once all the points have been transferred go to the *Report Setup*, Fill phase window and select Calculated option from the menu beside the *Rate*. The fill rate will update in the report.

**• The filling rate and volume information is nonsense.**

Check that the data has not been analysed across blocks (you will have been warned), as across blocks the time information is lost and so the calculations based on time (there are many, refer to appendix B.2) will be wrong. We do not recommend stopping recording during a phase study.

## APPENDIX E : INTERNAL DATA FORMAT

The Uromac report generator uses only Chart waveform files during normal operation. However for Import and Export operations text files are also handled so that data may be manually edited by a standard editor such as SimpleText. The format of all files must conform with the formats specified below. The following information is intended only for those who wish to create custom export files, edit raw sample data or import foreign data. Creation of a new data export format file may take some software programming experience.

Following are examples of typical sessions using Import and Export.

- **Raw data editing.**

If you wish to edit the raw sample values of a 'double click' point you first Export the report to a text file. (The name of this file is your responsibility.) The file can then be opened and edited with SimpleText (Or any other plain text editor.) The format of these data files is explained below. Having made the desired changes and re-saved the file, the data can be Imported back into the original Uromac file (or new file).

- **Foreign data export.**

If you require data to be transferred to a foreign spreadsheet or database you use the 'Export Format File' to convert the UroReport data to nearly any text based format. Assuming a suitable format file has been read and saved in the Uromac settings all that is required is to press 'Formatted Report' and provide a file name for the exported data. This file can then be read and processed by the foreign application.

- **Adding a custom 'double-click' point to a phase.**

To add your own custom point to a phase you need to edit the UroReport settings data. This can be Exported, Edited and Imported in the same way as Report data. (After importing a setting file don't forget to save the settings. (Under the 'Edit:Preferences' menu). New data points will not be used in Report calculations but may be exported for external processing by a another application.

### File Types.

As all Uromac import/export files are of type 'TEXT' it is the users responsibility to ensure that the correct files are selected for a particular operation. Text files created by UroReport have the creator 'txt' and if double clicked will launch SimpleText, the default Macintosh text editor.

## Report Data Files.

These files, created by the (unformatted) Export command, are basically a list of variable names and associated constants assigned to these variables. When editing these files it is rare to modify the variable names themselves. More usually the value of the constant field requires modification.

The text format of the files is basically…

```
VariableName1          Constant1

VariableName2
.VariableName2a        Constant2a
.VariableName2b        Constant2b

VariableName3          Constant3
   …                             …
VariableNameN          ConstantN
```

### Variable Syntax

Variable names are non-case sensitive and may contain letters, numbers, underscores and some special characters. Variables may be nested in a tree structure where the function of a particular variable is to contain other variables rather than a specific value. The enclosing variables could be termed branches and the terminal variables could be called leaves. Thus only leaves have specific constant values. Branches may be nested ie:

```
Branch1
       \ Branch2
       |          \ Leaf1
       |          \ Leaf2
       \ Leaf3
       \ Leaf4
```

To reference a particular leaf value the full "path" name of all parent branches, separated by periods, is specified. The values in the above graph are then fully specified as…

```
Branch1.Branch2.Leaf1
Branch1.Branch2.Leaf2
Branch1.Leaf3
Branch1.Leaf4
```

Where many variables have a common parent branch a short form annotation is used specifying only the parent branches that have changed since the last reference. All common branch names may be replaced with a period. This simplifies the above explicit representation to…

```
Branch1
.Branch2
..Leaf1
..Leaf2
.Leaf3
.Leaf4
```

There are two special characters that may proceed a variable name.

• The '@' character is used to define a transfer point within a phase.
ie: Phase.Fill.@Urgency

• The '&' character is used to flag variables that should not be copied from a setup to the report. As most users will not be concerned with modifying variable names these special characters should not pose a problem.

**Value (Leaf) Syntax**

Values may have the following forms…

`String  example:  "Test string"`

Strings are stored between quotes and may contain any characters that can be typed from the keyboard including <return>. The style of quotes is determined by the presence of quotes already within the string. For example notice that the following string has been stored with single quotes as the string already contains double quotes. ie: 'Fill was terminated at "Strong" desire stage.' Eligible quotes include - " ' `. The maximum length of a string is 255 characters, including the quotes.

`Integer  example:  4764`

Integers are expressed with only numeric characters and a '-' minus sign allowed.
ie: 0 186 -643 -1 etc.

`Real  example:  176.29  "mmHg"`

Real numbers are usually stored in a fixed point representation and always contain a decimal point to distinguish them from integers. A real number may also have a units field in the form of a string following the numeric value. These units will then be used to annotate the value whenever it is printed, ie: screen and reports.

`Boolean  example:  True`

A boolean has only two forms, either: True or False. The text is not case sensitive but the complete and correct spelling of true or false must appear.

`Point  example:  100,200`

A point is a special case of two integers separated by a comma.

`Array  example:  [1.2, 3.4, 5.6, 7.8, 9.0]`

An array is a list of real values enclosed in square braces. Each value must be separated from the next by a comma. If a value is unknown for a particular column in the array then it may be omitted. ie: [1.2, 3.4, , 7.8, 9.0]

## Combined syntax.

Part of a report showing only a fill phase follows…

```
Report
.Physician              "Dr. P. Stevens"
.Technician             "Jean Bloggs"
.Date                   "12/11/92"

Hospital
.Name                   "DUDLEY HOSPITAL"
.Department             "URODYNAMICS"

Phase
.Fill
..Medium                 "Water"
..Method                 "Gravitational"
..Rate                  "100  ml/min"
..@Start_Of_Fill
...Include              True
...Description          "Fill started, bladder commences filling"
...Data
....Time                37.5 "sec"
....Qvoid               0.79 "mL/sec"
....Vvoid               32.69 "mL"
....Pdet                -3.24 "cmH2O"
....Pura                68.27 "cmH2O"
....Pves                32.11 "cmH2O"
....Pabd                35.89 "cmH2O"
....Puc                 35.08 "cmH2O"
....Vfill               150.71 "mL"

..@First_Desire
...Include               True
...Description          "Patient indicates first desire to void"
...Data
....Time                60.5 "sec"
....Qvoid               -0.2 "mL/sec"
....Vvoid               36.25 "mL"
....Pdet                -3.51 "cmH2O"
....Pura                66.92 "cmH2O"
....Pves                32.38 "cmH2O"
....Pabd                36.16 "cmH2O"
....Puc                 33.46 "cmH2O"
....Vfill               166.43 "mL"
...Time                 23.0 "sec"
...Volume               15.71 "ml"
...Pdet                 -0.27 "cmH2O"

..@Normal_Desire
...Include              True
...Description          "Patient indicates normal desire to void"
...Data
....Time                107.5 "sec"
....Qvoid               0.3 "mL/sec"
....Vvoid               34.47 "mL"
....Pdet                -2.16 "cmH2O"
....Pura                45.33 "cmH2O"
....Pves                63.68 "cmH2O"
....Pabd                65.84 "cmH2O"
....Puc                 -18.89 "cmH2O"
....Vfill               211.43 "mL"
...Time                 70.0 "sec"
...Volume               60.71 "ml"
...Pdet                 1.08 "cmH2O"
```

```
..@End_Of_Fill
...Include                  True
...Description              "Fill stopped, bladder at max. fill pressure"
...Data
....Time                    255.0 "sec"
....Qvoid                   0.99 "mL/sec"
....Vvoid                   34.47 "mL"
....Pdet                    -2.16 "cmH2O"
....Pura                    6.75 "cmH2O"
....Pves                    36.43 "cmH2O"
....Pabd                    38.59 "cmH2O"
....Puc                     -30.09 "cmH2O"
....Vfill                   265.71 "mL"
...Time                     217.5 "sec"
...Volume                   115.0 "ml"
...Pdet                     1.08 "cmH2O"

..Urge_Incont               "nil"
..Stress_Incont             "nil"
..Instability               "nil"
..Compliance                106.54 "ml/cmH2O"

Patient
.Name                       "John Jones"
.Number                     "PN123456"
.Sex                        "Male"
.Age                        "27"
.Height                     "189 cm"
.Weight                     "78 kgs"
.Ref_Dr                     "Dr. Patterson"

Video
.Bladder_Shape              "smooth"
.Bladder_Neck               "open"
.External_Sphincter         "normal"
.Urethra                    "normal"
.Prostatic_Urethra          "open"
.Stop_Start                 "n/a"
.Residual_Urine             "small"
.Other                      'obesity prevented "good views"'

Comments
.Clinical_Symptoms          "Frequency and small prostate."
.Urodynamics_Diag           "Increased (hypersensitive) bladder sensation."
.Further_Management         "Cystoscopy at Orange Base Hospital."
```

All values visible on a printed report and some additional data is stored in the report export file. Most data fields are self explanatory from their name and parent branch. Here are some comments on those fields that are not so obvious.

The phase and transfer points are stored in the following structure...

```
Phase
    \ Fill
    |    \ @Start_Of_Fill
    |    |                \ Include  True / False
    |    |                \ Description    "Text describing this point."
    |    |                \ Data
    |    |                       \ Time     value "units"
    |    |                         Qvoid    value "units"
    |    |                         Vvoid    value "units"
    |    |                         Pdet     value "units"
    |    |                         Pura     value "units"
    |    |                         Pves     value "units"
    |    |                         Pabd     value "units"
    |    |                         Puc      value "units"
    |    |                         Vfill    value "units"
    |    |       …
    |    \ @Incontinence_Leak etc.
    |
    \ Void
    |    \ @Told_To_void
    |    |       …
    |    \ @End_Of_Void
    |
    \ Empty
    |    \ @Start_Pves
    |    |       …
    |    \ @Pres_Tx_Max
    |
    \ Full
         \ @Start_Pves
         |       …
         \ @Pres_Tx_Max
```

The order in which points are transferred within a phase can be changed by manually altering their order in the settings file. Care should be taken not to change the phase of a particular point. Points can also be added if additional data is required for a particular phase. This data will not be analysed by UroReport but may be exported for analysis by another program. To add a new point simply copy and paste an existing point then change its variable name and description. Don't forget to start the variable name with an '@' character.

## APPENDIX F : EXPORT DATA FORMAT

### Export Format Files.

An Export Format File's contents is dictated by the target of the export data. It must be decided what information is required for export and in what form. Then using the syntax outlined below a suitable Export Format File can then be created.

Before attempting to create or edit an Export Format File you should be familiar with the standard report file and field formats described above. The syntax of Export Format Files is then best described by example. Assume that the file below has been read and saved into the settings file.

```
# Export file format.
# Test format only.
# Date : 28/10/93

{Patient.name}
{.Number}

Point           Time, Vfill, Vvoid, Qvoid, Pves, Pabd, Pdet, Pura, Puc

Fill Phase      # {Phase.Fill}

#{..@Start_Of_Fill.Data}
Start_Of_Fill   [....Time],[....Vfill],[....Vvoid],[....Qvoid],[....Pves],[....Pabd],[....Pdet],[....Pura],[....Puc]
#{..@First_Desire.Data}
First_Desire    [....Time],[....Vfill],[....Vvoid],[....Qvoid],[....Pves],[....Pabd],[....Pdet],[....Pura],[....Puc]
#{..@Normal_Desire.Data}
Normal_Desire   [....Time],[....Vfill],[....Vvoid],[....Qvoid],[....Pves],[....Pabd],[....Pdet],[....Pura],[....Puc]
#{..@Strong_Desire.Data}
Strong_Desire   [....Time],[....Vfill],[....Vvoid],[....Qvoid],[....Pves],[....Pabd],[....Pdet],[....Pura],[....Puc]
#{..@Urgency.Data}
End_Of_Fill     [....Time],[....Vfill],[....Vvoid],[....Qvoid],[....Pves],[....Pabd],[....Pdet],[....Pura],[....Puc]
#{..@First_Leak.Data}
First_Leak      [....Time],[....Vfill],[....Vvoid],[....Qvoid],[....Pves],[....Pabd],[....Pdet],[....Pura],[....Puc]

Medium :{..Medium}
Method :{..Method}
Rate :          {..Rate}

Compliance :    {..Compliance}

Void Phase      # {Phase.Void}

#{..@Told_To_Void.Data}
Told_To_Void    [....Time],[....Vvoid],[....Qvoid],[....Pves],[....Pabd],[....Pdet],[....Pura],[....Vfill],[....Puc]
#{..@Premict_Pressure.Data}
Premict_Pressure [....Time],[....Vfill],[....Vvoid],[....Qvoid],[....Pves],[....Pabd],[....Pdet],[....Pura],[....Puc]
#{..@Pdet_Rise.Data}
Pdet_Rise       [....Time],[....Vfill],[....Vvoid],[....Qvoid],[....Pves],[....Pabd],[....Pdet],[....Pura],[....Puc]
#{..@Start_Of_Void.Data}
Start_Of_Void   [....Time],[....Vfill],[....Vvoid],[....Qvoid],[....Pves],[....Pabd],[....Pdet],[....Pura],[....Puc]
#{..@Max_Void_Flow.Data}
Max_Void_Flow   [....Time],[....Vfill],[....Vvoid],[....Qvoid],[....Pves],[....Pabd],[....Pdet],[....Pura],[....Puc]
#{..@Max_Pabd.Data}
Max_Pabd        [....Time],[....Vfill],[....Vvoid],[....Qvoid],[....Pves],[....Pabd],[....Pdet],[....Pura],[....Puc]
#{..@Max_Pves.Data}
Max_Pves        [....Time],[....Vfill],[....Vvoid],[....Qvoid],[....Pves],[....Pabd],[....Pdet],[....Pura],[....Puc]
#{..@End_Of_Void.Data}
End_Of_Void     [....Time],[....Vfill],[....Vvoid],[....Qvoid],[....Pves],[....Pabd],[....Pdet],[....Pura],[....Puc]
```

Then with a suitable patient file loaded the 'Formatted Report' button might produce the following output to the specified file...

John Jones
PN123456

Fill Phase

| Point | Time, Vfill, Vvoid, Qvoid, Pves, Pabd, Pdet, Pura, Puc |
|---|---|

Fill Phase

| | |
|---|---|
| Start_Of_Fill | 58.5, 73.0, 1.0, -0.2, 23.02, 22.52, 0.52, 40.02, 17.02 |
| First_Desire | 196.5, 231.0, 1.0, -0.25, 29.52, 27.02, 2.12, 37.02, 8.02 |
| Normal_Desire | 268.5, 314.0, 0.0, -0.3, 32.02, 29.82, 1.82, 46.52, 14.02 |
| Strong_Desire | 328.5, 384.0, 0.0, -0.3, 29.82, 27.52, 2.02, 61.52, 32.02 |
| End_Of_Fill | 396.0, 463.0, 0.0, -0.3, 36.52, 30.02, 6.32, 68.52, 31.52 |
| First_Leak | 220.5, 259.0, 1.0, -0.3, 30.32, 28.82, 1.32, 39.02, 7.52 |

Medium : Saline
Method : Pumped
Rate : 69.33 ml/min (calc)

Compliance : 67.24 ml/cmH2O

Void Phase

| | |
|---|---|
| Told_To_Void | 0.0, ?, 2.0, 0.0, 36.02, 35.02, 1.42, ?, ? |
| Premict_Pressure | 1.25, ?, 2.0, 0.0, 31.02, 30.52, 0.02, ?, ? |
| Pdet_Rise | 4.25, ?, 5.0, 0.0, 52.32, 50.52, 1.92, ?, ? |
| Start_Of_Void | 6.5, ?, 8.0, 0.0, 56.32, 49.02, 7.42, ?, ? |
| Max_Void_Flow | 20.25, ?, 578.0, 31.45, -1.32, 57.82, -58.92, ?, ? |
| Max_Pabd | 24.0, ?, 704.0, 18.8, -1.52, 66.82, -68.52, ?, ? |
| Max_Pves | 9.25, ?, 84.0, 10.05, 59.82, 46.02, 13.32, ?, ? |
| End_Of_Void | 31.25, ?, 723.0, 0.1, -2.02, 9.82, -10.92, ?, ? |

As you can see, UroReport has replaced the original field descriptions with the contents of those fields, as well as allowing comments and abbreviated field references. Most characters in the input file are simply echoed to the output file with these exceptions…

# - If a 'hash' character appears on a line then all characters (including the hash) to the end of the line suppressed from the output allowing comments to be appended. The hash character can also be used to embed field references.

{ } - Field references contained within curly braces will be converted to field data and replaced in the output file with this data. (If a # has not suppressed output)

[ ] - Same as { } but suppresses the units field of the data.

All spaces and tabs are reproduced verbatim allowing the format of the output to be dictated by the format of the input. This also allows the creation of customised text reports that can be included into word processor documents etc.

If no value is known for the requested field a ? will be output.

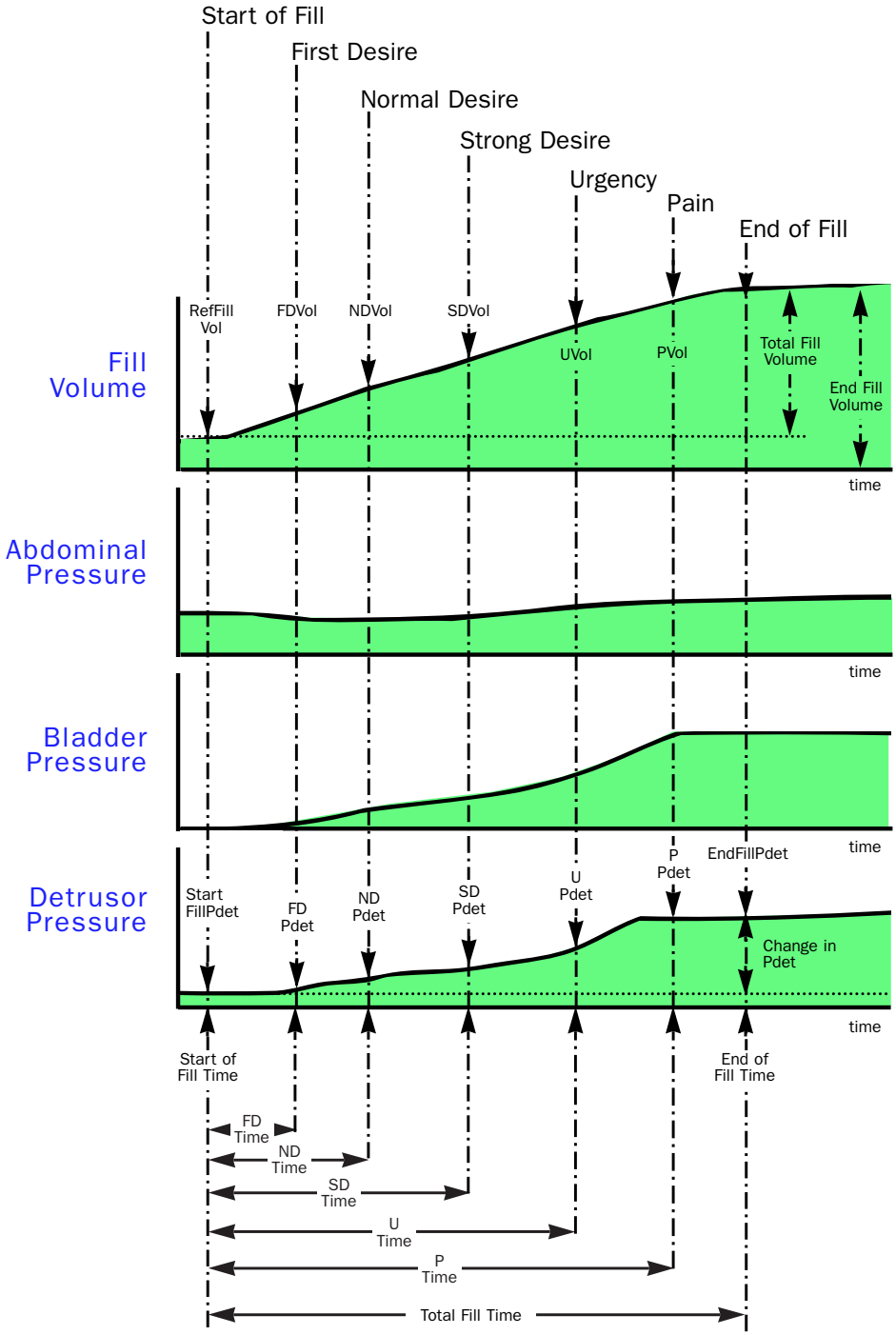
## Changes_in_file_format.

The format of files has changed slightly with version v3.1.3 onwards. The raw data is no longer stored in an array variable (v2.3.8) but rather as individual variables within the data branch. This means that the 'columns' variable is no longer required to access the data.

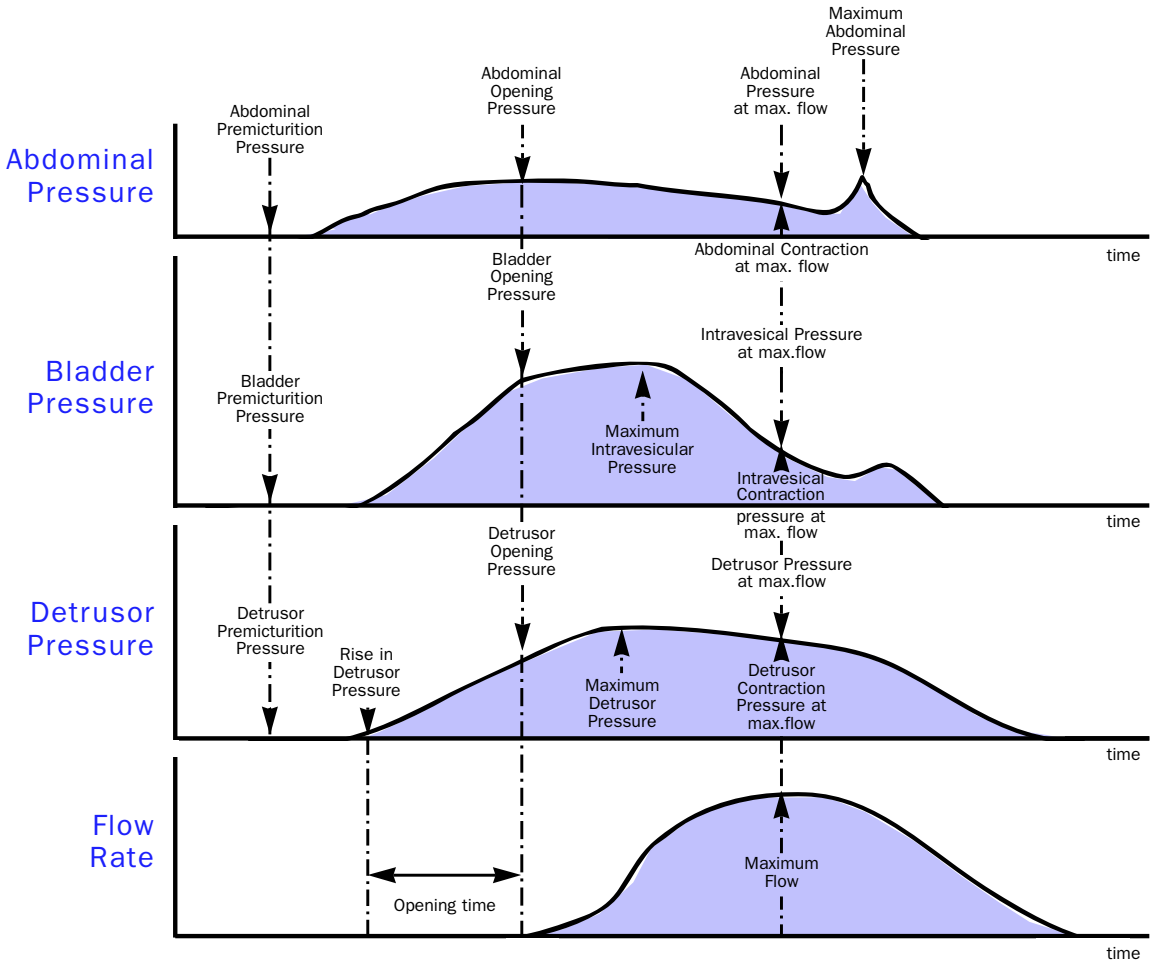
However the export format file will need updating to change array references like **[Qvoid]** to read **[....Qvoid]**.

## APPENDIX G : DATA POINT DIAGRAMS

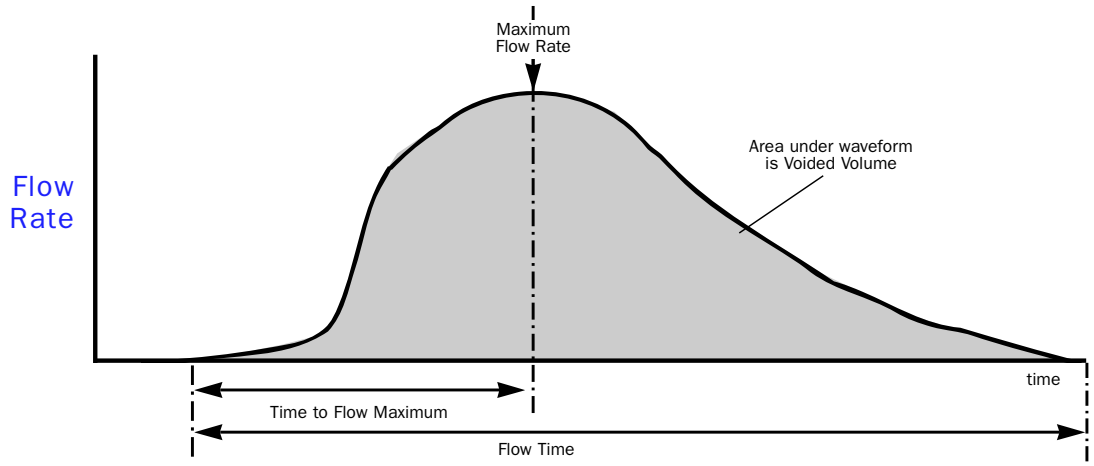
# Nomenclature Used in Fill Data Calculations



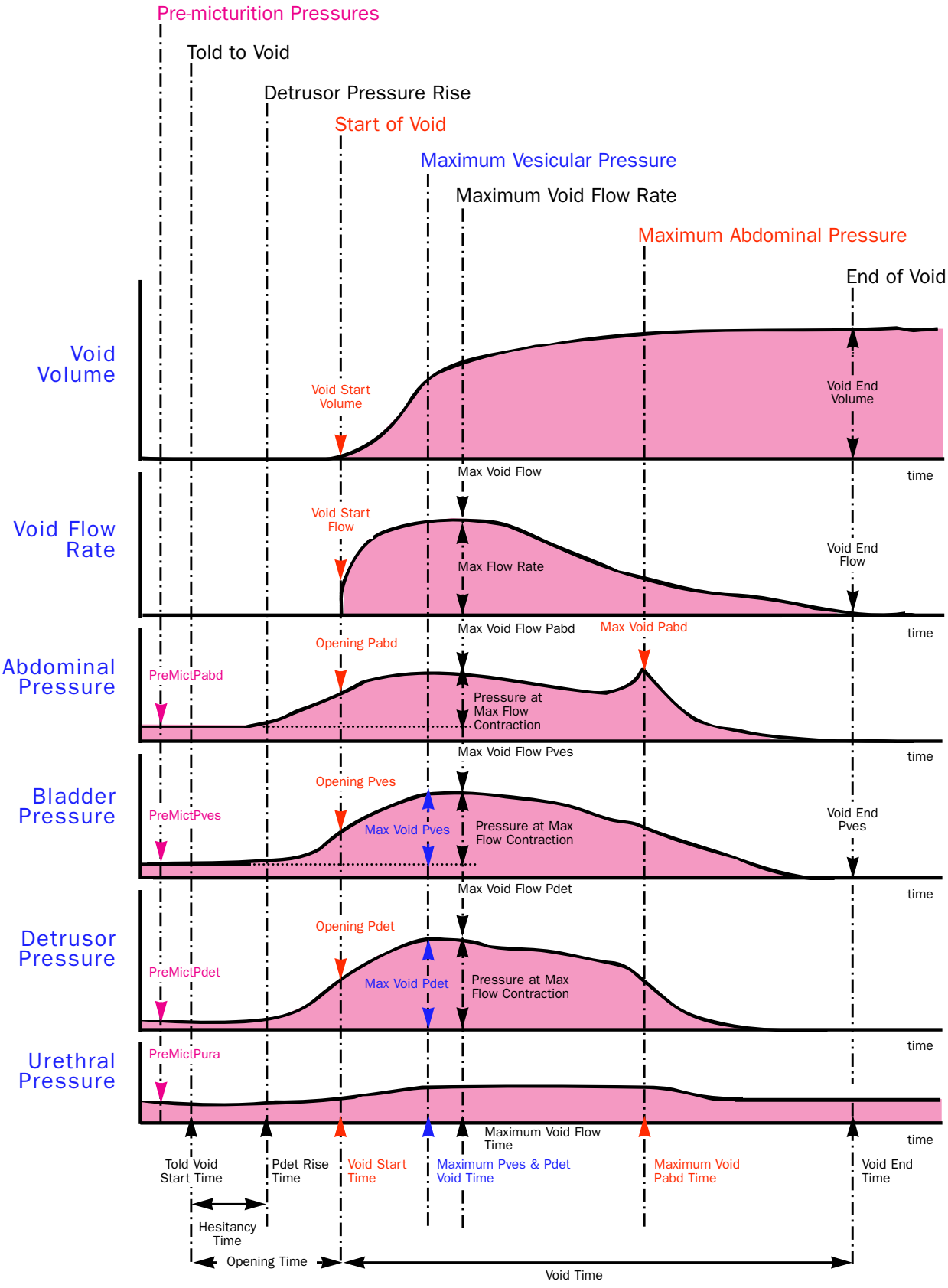
## Nomenclature used for Pressure Flow Data



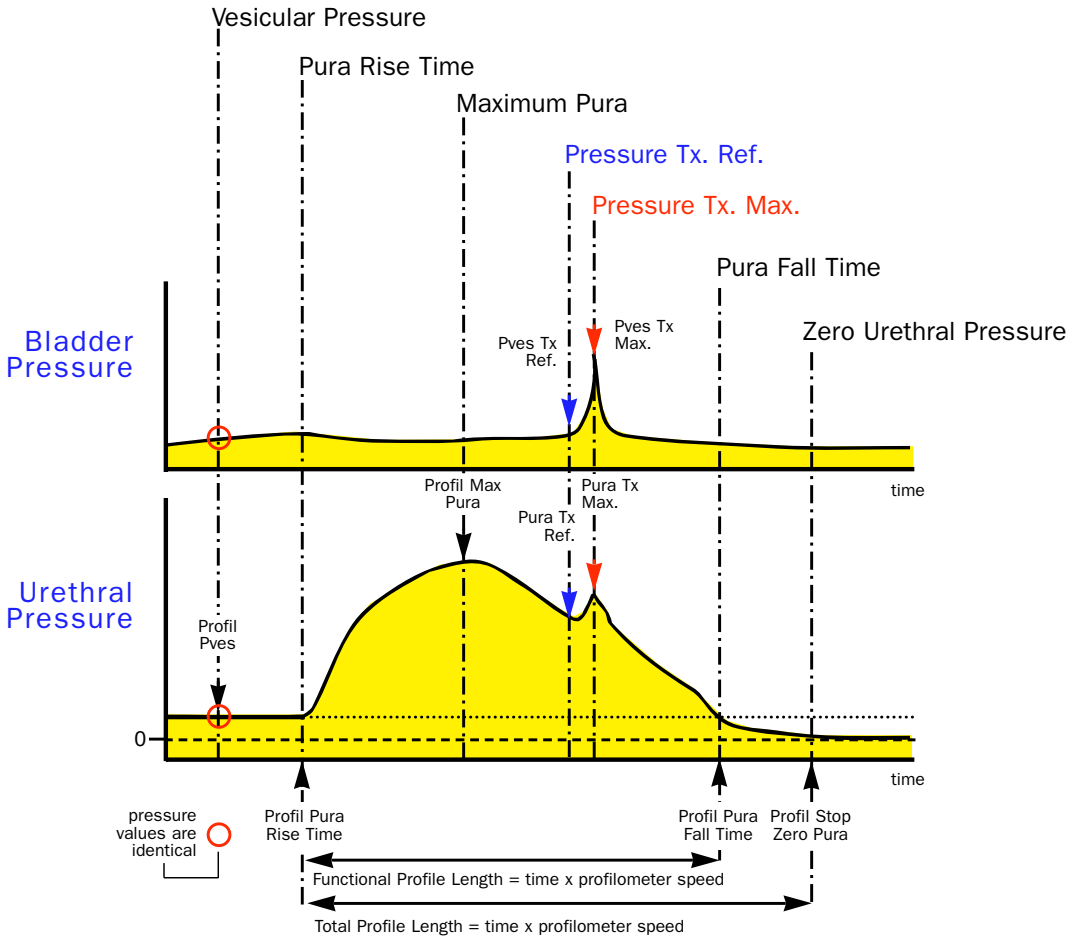

## Nomenclature used for Continuous Voiding Phase Calculations



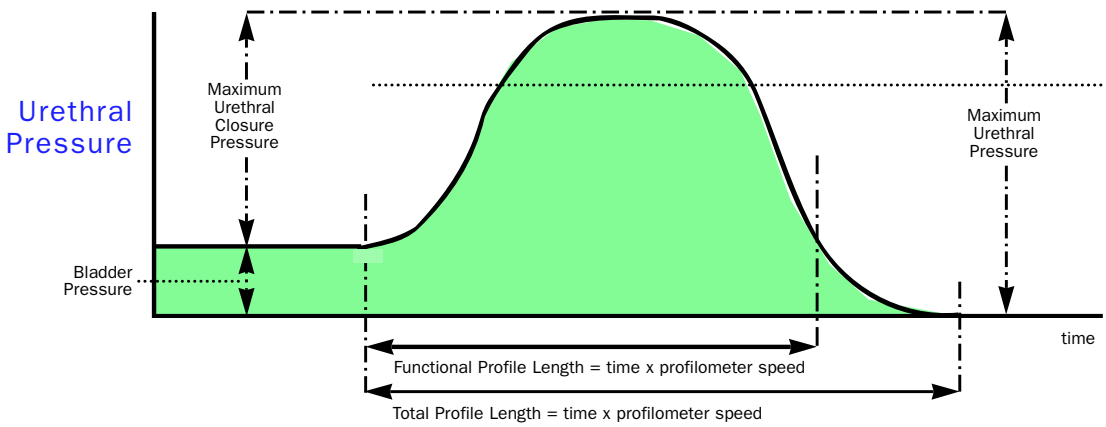
# Nomenclature Used in Void Data Calculations



## Nomenclature Used in Urethral Phase Calculations




## Nomenclature used in Urethral Profilometry Phase Calculations


Urethral Pressure
Maximum Urethral Closure Pressure
Maximum Urethral Pressure
Bladder Pressure
time
Functional Profile Length = time x profilometer speed
Total Profile Length = time x profilometer speed